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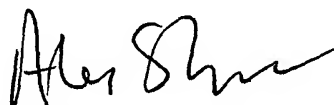
Sugar solution	(35 % solution)	10 parts
Powdered skim milk	(8 % solution)	20 parts
Citric acid solution	prepared to pH 4.0-6.5 with citric acid solution	(50 % solution)

# REMARKS

The specification has been amended to correct some minor clerical errors.

Early and favorable action on the merits of the application are earnestly solicited.

Respectfully submitted,



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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent  
appln. of: Taro TAKAHASHI et al.

Serial No: 10/049,570

Filed: February 14, 2002

For: PECTINS, PROCESS FOR THEIR  
PRODUCTION, ACIDIC PROTEIN FOODS  
EMPLOYING THEM, AND PROCESS FOR  
THEIR PRODUCTION

Examiner: Not yet assigned

Art Unit: 1761

Docket No.: 038-02

Box Amendments Non-Fee  
Commissioner for Patents  
Washington, DC 20231

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VERSION WITH MARKINGS TO SHOW CHANGES

The marked up version of the amended specification is as follows:

Please substitute the following paragraph for the paragraph bridging pages 1 and 2 of the specification:

- - As mentioned above, production of pectins from 35 tubers and corms has long been the subject of study as a research topic. [However, pectins derived from fruits such as apples or citrus fruits do not have excellent function as gelling agents for jams and the like, which are their major purposes, and hence they have not seen practical use.] However, in terms of its function as a gelling agent for jams and the like that has been examined as its major use, it has not excelled over pectin derived from fruits such as

apples or citrus fruits, and its use has therefore not been practical to date. In addition, while uses and production processes for fruit-derived pectins have been investigated in depth, it is currently the situation that virtually no research has been carried out on the characteristic function of pectins obtained from root vegetables, and particularly tubers and corms, and on establishing the detailed production conditions. -

Please substitute the following paragraph for the paragraph bridging pages 4 and 5 of the specification:

-- As a result of diligent research directed toward solving the problems described above, the present inventors have found that pectins obtained by hot water extraction under weakly acidic conditions from starch residue as a [working] processing by-product of tubers and corms exhibit a characteristic function, and particularly that the use of potato-derived pectins can satisfactorily stabilize acidic protein foods in a pH range above the isoelectric point of the proteins at a lower viscosity than with fruit-derived pectins. Upon continued research subsequent to filing of Japanese Patent Applications No. 11-9984 and No.11-249464, it was further found that by using an emulsifier during extraction of the pectins it is possible to efficiently minimize or eliminate elution of starch contaminants in the starch residue. The present invention has been completed on the basis of

these findings. - -

Please substitute the following paragraph for the second full paragraph on page 5 of the specification:

- - Examples of root vegetables as raw materials for extraction of pectins according to the invention include tubers and corms such as potatoes, sweet potatoes, taros, yams and devil's tongue root, as well as burdocks, carrots, radishes, lotus roots, beets and the like, among which tubers and corms are particularly preferred. Such tubers and corms can be used either in raw or dried form, but preferably the raw or dried starch residue produced as a [working] processing by-product of starch industry is used, and such starch residue from potatoes is readily available. - -

Please substitute the following table for the Table 1 on page 10 of the specification:

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Table 1

Product Name	HLB	Type	Raw fat/oil (fatty acid)
POEM K-30	3.0	monoglyceride citrate	stearic acid-based
RIKEMARRU FF-100	3.7	PG ester	palmitic acid-based
EMULSI MS	4.3	high-purity monoglyceride	stearic acid-based
EMULSI P-100	4.3	high-purity monoglyceride	53% stearic acid, 47% palmitic acid
POEM P-10	5.5	monoglyceride succinate	stearic acid-based
C-LR10	6.0	monoglyceride citrate	oleic acid-based
POEM W-10	9.5	diacetyl monoglyceride tartrate	stearic acid-based
SANLECITHIN S	10-12	enzymolytic lecithin	soybean oil
MO 750	12.9	decaglycerin monoester	oleic acid-based
MSW 750	13.4	decaglycerin monoester (purity 40%)	stearic acid-based
ML 750	14.8	decaglycerin monoester	lauric acid-based
DK ESTER F-160	15.0	[sugar] <u>sucrose fatty acid</u> ester	stearic acid-based monoester
F-1670	16.0	[sugar] <u>sucrose fatty acid</u> ester	palmitic acid-based monoester
MCA 750	16.0	decaglycerin monoester	caprylic acid-based

DK ESTER F-33	19.0	[sugar] <u>sucrose fatty acid ester</u>	stearic acid-based monoester (monoester purity: 100%)
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Please substitute the following paragraph for the first full paragraph on page 11 of the specification:

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After suspending 50 g of non-purified dried potato starch residue (moisture content: 10', starch content (in solid portion): 36') in 950 g of water, 1.8 g of a [sugar] sucrose fatty acid ester with an HLB value of 16 (trade name: RYOTO SUGAR ESTER P-1670, product of Mitsubishi-Kagaku Foods Corp.) was added, the pH was adjusted to 4.5 with hydrochloric acid, and the mixture was heated at 110°C for 90 minutes to extract the crude pectin. After cooling, centrifugal separation (10,000 g x 30 minutes) was carried out to separate the pectin extract and sediment portion. The separated sediment portion was again subjected to centrifugal separation after addition of an equivalent weight of water, and after combining the supernatant with the previously obtained pectin extract, the mixture was dried to obtain pectin (A).

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Please substitute the following table for the Table 4 on page 13 of the specification:

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Table 4

Pectin solution	(1% solution)	20 parts
Sugar solution	(35 % solution)	10 parts
Cow milk		20 parts
Citric acid solution	prepared [at] to pH 5.0 with citric acid solution	(50 % solution)

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Please substitute the following paragraph for the first full paragraph on page 14 of the specification:

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After suspending 1 kg of non-purified dried potato starch residue (moisture content: 10%, starch content (in solid portion): 36%) in 19 kg of water, 36 g of a [sugar] sucrose fatty acid ester with an HLB value of 16 (trade name: RYOTO SUGAR ESTER P-1670, product of Mitsubishi-Kagaku Foods corp.) was added, and the pectin was extracted in the same manner as Example 1. The pectin extract was spray dried to obtain a crude pectin, which was used as a stabilizer for evaluation of the protein dispersion stabilizing function at different pH levels with the composition shown in Table 5 below.

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Please substitute the following table for the Table 5 on page 15 of the specification:

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Table 5

Stabilizer solution	(1% solution)	20 parts
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Sugar solution	(35 % solution)	10 parts
Powdered skim milk	(8 % solution)	20 parts
Citric acid solution	prepared [at] <u>to pH</u> 4.0-6.5 with <u>citric</u> acid solution	(50 % solution)

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